

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1. (currently amended) An antenna comprising:

a substrate having first and second opposing surfaces;
a plurality of antenna elements disposed on the first surface of said substrate;
a ground plane disposed on the second surface of said substrate; and
at least one surface wave control structure disposed on the first surface of said substrate and between an adjacent pair of the plurality of antenna elements, ~~where~~ said at least one surface wave control structure ~~has~~ having a triangular cross section in a plane perpendicular to said substrate, ~~and having an apex at a pre-determined distance between 0.1 and 1.0 inches above the first surface of said substrate and having an apex angle between 5 and 30 degrees; wherein the apex has a pre-determined apex angle.~~

2. (original) The antenna of claim 1, wherein the intersection of the at least one surface wave control structure with the first surface of the substrate is a rectangle.

3. (original) The antenna of claim 1 wherein the major axis of the at least one surface wave control structure has a pre-determined orientation angle with respect to a line connecting the centroids of the adjacent pair of the plurality of antenna elements.

4. (original) The antenna of claim 3, wherein the orientation angle is such that the mutual coupling between the adjacent pair of antenna elements is reduced.

5. (cancelled)

6. (original) The antenna of claim 1, wherein the plurality of antenna elements are stacked patch antenna elements.

7. (original) The antenna of claim 6, wherein the plurality of antenna elements corresponds to four antenna elements disposed as a four element array, and the at least one surface wave control structure corresponds to two surface wave control structures that are disposed to reduce the mutual coupling between each of the four antenna elements.

8. (original) The antenna of claim 7 wherein the four element array and the two surface wave control structures correspond to an antenna sub-assembly, and the antenna comprises a plurality of the antenna sub-assemblies.

9. (currently amended) An antenna including one or more stacked patch assemblies, each having a first patch element adapted to couple with an isolation structure to a second patch element, the second patch element disposed on a first surface of a substrate, and a ground plane disposed on a second surface of the substrate, wherein the first surface of the substrate corresponds to a radiating surface, the antenna comprising:

one or more upper tuning structures having a first end in electrical contact with the first patch element and a second end in electrical contact with the second patch element; and

one or more lower tuning structures having a first end in electrical contact with the second patch element and a second end in electrical contact with the ground plane, wherein said one or more upper tuning structures and said one or more lower tuning structures are disposed such that ~~the first and the second patch element can be tuned independently of each other, one or more upper tuning structures can be used to tune the first patch element within a first frequency range and the one or more lower tuning structures can be used to tune the second patch element within a second frequency range wherein the tuning provided by a first one of the upper and lower tuning structures is substantially independent of the tuning provided by a second one of the upper and lower tuning structures.~~

10. (original) The antenna of claim 9, wherein the upper and lower tuning structures are conductive screws.

11. (original) The antenna of claim 9, wherein the upper and lower tuning structures are conductive vias.

12. (original) The antenna of claim 9, wherein at least one of the upper and lower tuning structures comprises one or more respective conductive vias.
13. (original) The antenna of claim 9, wherein the one or more stacked patch assemblies correspond to four stacked patch assemblies.
14. (original) The antenna of claim 13, wherein the wherein the four stacked patch assemblies corresponds to an antenna sub-assembly, and a plurality of antenna sub-assemblies comprises an antenna array.
15. (currently amended) The antenna of claim 9, further comprising a first upper feed coupled to the first patch element, ~~where~~wherein the upper tuning structures are ~~aligned~~disposed along an axis and ~~with the first upper feed is also disposed along the same axis.~~
16. (currently amended) The antenna of claim 15, further comprising a second upper feed coupled to the first patch element, ~~wherein~~where the lower tuning structures are ~~aligned~~disposed along an axis and ~~with the second upper feed is also disposed along the same axis.~~
17. (currently amended) The antenna of claim 9, further comprising a first lower feed coupled to the second patch element, ~~wherein~~where the lower tuning structures are ~~aligned~~disposed along an axis and ~~with the first lower feed is also disposed along the same axis.~~
18. (currently amended) The antenna of claim 17, further comprising a second lower feed coupled to the second patch element, ~~wherein~~where the upper tuning structures are ~~aligned~~disposed along an axis and ~~with the second lower feed is also disposed along the axis.~~
19. (currently amended) The antenna of claim 9, further comprising an upper feed coupled to the first patch element, ~~wherein~~where the upper tuning structures are ~~aligned~~disposed along an axis and ~~with the upper feed is also disposed along the same axis.~~

20. (currently amended) The antenna of claim 19, further comprising a lower feed coupled to the second patch element, ~~wherein~~where the lower tuning structures are aligned~~disposed along an axis and with the lower feed is also disposed along the same axis.~~

21. (original) The antenna of claim 9, wherein the first and second patch elements are provided having one of:

- a) a square shape,
- b) a round shape, and
- c) a rectangular shape.

22. (original) The antenna of claim 9, further including a conductive sidewall coupled to the ground plane and disposed upon the circumference of the substrate.

23. (currently amended) The antenna of claim 9, further including one or more combiner circuits coupled to each respective one or more stacked patch assemblies to provide a pre-determined polarization. ~~polarization.~~

24. (new) The antenna of claim 13, further including at least one surface wave control structure disposed on a first surface of said isolation structure and between an adjacent pair of the one or more stacked patch assemblies, where said at least one surface wave control structure has a triangular cross section in a plane perpendicular to said substrate, and an apex at a pre-determined distance above the first surface of said substrate, wherein the apex has a pre-determined apex angle, wherein the apex is at a distance between 0.1 and 1.0 inches above the substrate, and the apex angle is between 5 and 30 degrees.